

STUDIES ON THE PRESENT STATUS OF INDIGENOUS ORNAMENTAL FISH CULTURE PRACTICES IN WEST BENGAL

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ABSTRACT

Now a days the word ornamental fish needs no introduction. West Bengal particularly bestowed with a large number of potential fishes of native variety which are known as indigenous ornamental fish. Ornamental fish culture, breeding and trade has shown new light in to the livelihood generation of the rural masses in recent times. So we made a survey in different districts of West Bengal for the study of ornamental fish culture practices and it revealed that there three types of culture are in practices. There are two seasons of the culture practices and three types of sources of fish seeds in the culture practices. We also came to know about different types of problems are associated with this culture and in case of marketing strategies there are three categories remain. So the paper reveals the most important information in relation to the cultural aspects of ornamental fish culture.

KEYWORDS: Ornamental, Indigenous, Breeding, Season, Livelihood, Marketing

INTRODUCTION

Ornamental fish can be defined as an attractive colourful fishes of peaceful by nature that are kept as a pets in confined space of an aquarium or a garden pool with the purpose of enjoying their beauty for fun and fancy (Dey,1996). Mills (1995) viewed aquarium fishes as visually exciting objects. Next to birds, ornamental fishes are perhaps the most cheerful living beings. They have unique shapes, colouration, body forms and movements. That is why ornamental fishes are also called “live jewels” for their behaviour.

Though pond fish culture reportedly originated about 4500 years back in the Sumerian civilization (presently in Iraq), colourful fishes could not be kept in indoor tanks as pet till the requirements of aquatic animals were known. The hobby of keeping ornamental fishes as pet is said to have originated with keeping of gold fish in the glass bowls in China several years ago. During 17th century, gold fish was introduced to several countries and become popular in England and Scotland. Keeping of fish in glass aquarium started in 1805. The first public display aquarium was opened at Regent’s park in England (Swain et al., 2003).

MATERIALS AND METHODS

The studies were conducted in four districts of West Bengal i.e. North 24 Parganas, South 24 Parganas, Howrah and Hooghly. To conduct the study scientifically, a suitable research design was evolved in order to arrive at an authentic conclusion. This chapter deals with the details of the methodology adopted for the present study. Now for the sake of convenience the chapter is sub-divided in to the following sub-headings.

- Locale of the study for selection of sampling areas
- Selection of respondents.
- Operationalization of variables and their measurement.
- Development of questionnaire and methods of data collection.
- Statistical analysis of the data.

LOCALE OF THE STUDY FOR SELECTION OF SAMPLING AREAS

Ornamental fishes are generally cultured in different districts of West Bengal namely Howrah, South 24 Parganas, Jalparguri, Darjeeling, Birbhum, Hooghly etc. But among those districts, South 24 Parganas, North 24 Parganas, Howrah and Hooghly districts were selected for this study because these districts are rich in ornamental fish and are adjacent to each other. The present study was carried out from the month of March' 2008 to February' 2011 among the selected districts.

SELECTION OF RESPONDENTS

A list of all ornamental fish farmer of four selected areas was prepared. The number of fish farmers of four districts were seven hundred. Among them eighty ornamental fish farmers from each district and as a whole three hundred twenty fish farmers were selected by using simple random technique without replacement from the four districts. Thus three hundred twenty numbers of ornamental fish farmers i.e. respondents were taken as the sample size for this study.

Sum total nos. of respondents:

$$\text{Howrah} = 80 + \text{Hooghly} = 80 + \text{North 24 Parganas} = 80 + \text{South 24 Parganas} = 80$$

Total nos. of respondents: 320

OPERATIONALIZATION OF THE VARIABLES AND THEIR MEASUREMENT

Type of Culture

It refers to the culture of ornamental fishes. Generally three types of cultures are adopted by the farmers i.e. traditional , semi- intensive and intensive culture.

Season of Culture

It refers to the time of ornamental fish culture. Generally two seasons are seen i.e. throughout the year and from April to November.

Sources of Fish Seeds

It refers to the availability of ornamental fish seeds. Generally three tupes of sources are seen i.e. from breeders, from own farms and from other sources.

Medicine Used

It refers to the use of different types of medicine during the out break of diseases. Farmers generally use common salt, methyline blue, copper sulphate or potassium permanganate or some do not use any medicine.

Problems of Culture

It refers to different types of problems faced during the culture practices. Generally four types of problems are prevalent i.e. marketing problem, transportation problem, credit problem and disease problem.

Marketing Channels

It refers to different types of marketing channels of the aqua business. Generally three types of marketing channels are seen i.e. direct sell to consumer, sell to middle man and sell to exporter.

METHOD OF THE DATA COLLECTION

The final data for this study were collected with the help of structured interview. The data were collected during March' 2008 to February' 2011. The respondents were contacted twice in order to establish rapport with them and obtaining factual information. The researcher herself individually interviewed the respondents selected in the sample in order to gather the required and relevant information for the study.

STATISTICAL ANALYSIS OF DATA

The collected data were checked and put in prepared format for bring out proper results. For making simple comparisons the frequency tables were constructed and the respective percentages were calculated. The acquired data were analyzed by following statistical techniques.

Mean

Mean or average, taken as representative of group of items implies a measured degree of validity. The arithmetic mean is the simple average, which is calculated as the sum of the items divided by the number of items.

The formula for the mean of a series of numbers is as follows:

$$\bar{X} = \frac{\sum x}{N}$$

Where $\sum x$ = Sum of the individual items.

N= Number of items.

Percentage

Percentages were used mainly for making simple comparison. For calculating percentages the frequency of a particular characteristic were divided by total number of respondents in that particular characters and multiplied by 100.

The formula for the percentage is as follows:

$$\text{Percentage} = \frac{\text{Frequency}}{N} \times 100, \text{ where } N = \text{Number of items.}$$

RESULTS

Culture Practices and Problems

To know the present status of ornamental fish farming in the study area, the information relating to culture practices, marketing and problems must be brought in the consideration.

BRIEF ACCOUNTS OF THESE PRACTICES ARE GIVEN BELOW

Culture Practices Type of Culture

It is reported that the respondents were used to do all the three types of culture. From the study it is observed that the farmers who consulted with Government officials or a member of co-operative societies, they generally adopted the scientific or semi scientific cultural practices. Publication in Journals with Imp Factor – JCC and ICV values

Table 1: Distribution of Respondents According To Their Type of Culture (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Traditional	32	10.00
2.	Semi-intensive	221	69.06
3.	Intensive	67	20.93

From the table it is clear that out of 320 ornamental fish farmers, the majority i.e. 221 (69.06%) practiced semi-intensive culture followed by 67 (20.93%) no. of ornamental fish farmers practiced intensive culture. Where as only 32 (10%) ornamental fish farmers practiced traditional farming (Table-1, Fig-1, A).

Season of Culture

Generally ornamental fish farmers was depended o n the sources of brood stock and demands in market.

Table 2: Distribution of Respondents According To Their Season of Culture (N=320)

Sl. No.	Category	Frequency	Percentage
1.	Through out the year	254	79.37
2.	Month (April-November)	66	20.62

The study revealed that the majority of the ornamental fish farmers i.e. 254 (79.37%) cultured ornamental fish throughout the year, whereas only 66 (20.62%) ornamental fish farmers used to culture in April to November only (Table-2, Fig- 1, B).

Sources of Fish Seeds

Availability of fish seeds is the most important raw material in ornamental fish farming.

Table 3: Distribution of Respondents According to Their Source of Fish Seeds (N=320)

Sl. No.	Category	Frequency	Percentage
1.	From Breeders	174	54.37
2.	From Own Farms	76	23.75
3.	From other Sources	70	21.87

It is clear from the table that 174 (54.37%) farmers collected seeds from breeders, 76 (23.75%) ornamental fish farmers collected seeds from their own farms. Only 70 (21.87%) farmers collected ornamental fish seeds from the other sources (Table- 3, Fig-2).

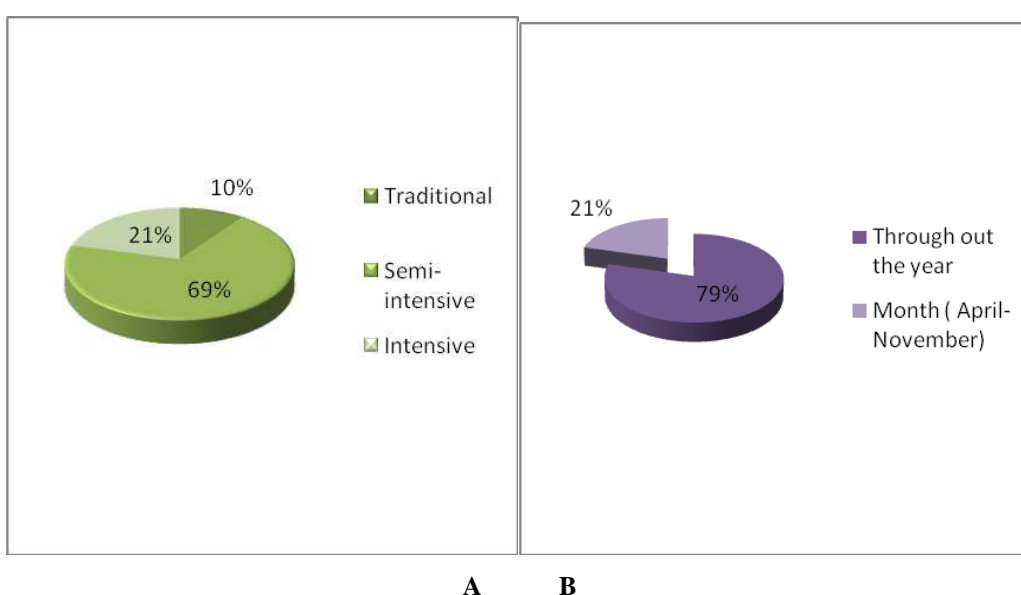


Figure 1: Chart a- Showing the Percentage of Types of Culture of Ornamental Fish Farmers

B- Showing the Percentage of Season of Culture of Ornamental Fish

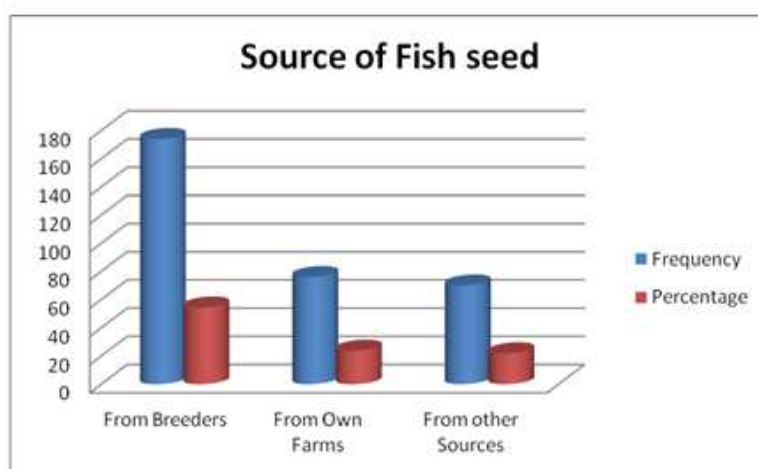


Figure 2: Chart Showing the Source of Fish Seed of Ornamental Fish

Medicine Used

It is interesting to note that the farmers did not use any commercial medicine.

Table 4: Distribution of Respondents According to Their Medicine Used. (N=320)

Sl. No.	Category	Frequency	Percentage
1.	No medicine	70	21.87
2.	Common medicine	190	59.37
3.	Methyline blue	51	15.93
4.	CuSO ₄ or KMnO ₄	9	2.81

It is evident from the table that the majority of the ornamental fish farmer i.e. 190 (59.37%) respondents used common salt as a medicine, 51 (15.93%) used methyline blue, only 9 respondents (2.81%) used copper sulphate and potassium permanganate, whereas 70 respondents (21.87%) did not use any medicine (Table-4, Fig- 3).

Problems

Ornamental fish farmers faced a lot of problem during fish culture. The problems are as follows:

Table 5: Distribution of Respondents According to Their Problems (N=320)

Sl. No.	Category	Frequency	Percentage	Rank
1.	Marketing problem	188	58.75	2
2.	Transportation problem	146	45.62	4
3.	Credit problem	165	51.56	3
4.	Disease problem	206	64.37	1

It is seen from the table that 206 (64.37%) respondents pointed out disease problem as the greatest problem in their aqua business. According to 188 (58.75%) respondents viewed that marketing problem is one of the serious problems of this trade. While 165 (51.56%) have commented credit problem as one of the vast problem. But 146 (45.62%) respondents opined that farmer faces transportation problem (Table-5, Fig-4).

MARKETING SYSTEM

Demand

The study revealed that high quality ornamental fishes have great demand in both domestic and in overseas market. Both exotic and indigenous ornamental fish species are cultured in this state.

Country and the state have made significant progress in commercial breeding of both exotic and indigenous ornamental fishes on a large scale. Indigenous species hold more promise since newer varieties of ornamental fishes have great demand in overseas markets and attract higher prices than the established ones. So to cover the high demand it is desirable to export a new species must withstand certain handling stress during its collection, conditioning and transportation. As a result, only a few specimens of such species survive during previously mentioned process which made the whole operation uneconomic since according to the current trade practices, the collector or supplier or exporter receives no payment for fishes that are 'dead on arrival' (DOA). Thus a trader's perspective, the ability of a certain potential ornamental fish species withstand certain handling stress during collection, conditioning and transportation is much more important in the way whether the fish species actually having traits like attractiveness to decide if the fish can be exported or not. Thus it is a key issue, which influences the trade in indigenous ornamental fishes mainly depends on its size,

colouration, attractiveness, brightness, hygenicity and its quality and obviously species to species.

Marketing Channels

Three types of marketing channels have been observed according to our survey. These are i> Sell of ornamental fishes direct to consumer. ii> Sell of ornamental fishes to the middle man. iii> Sell of ornamental fishes to the exporters.

**Table 6: Distribution of Respondents According To
Their Use of Marketing Channels
(N= 320)**

Sl. No.	Category	Frequency	Percentage
1.	Direct sell to consumer	81	25.31
2.	Sell to middle man	218	68.12
3.	Sell to exporter	21	6.56

The data showed that 218 (68.12%) number of ornamental fish farmer used to sell their product through the middle man. Whereas 81 (25.31%) farmers sold their product directly to the consumers and only 21 (6.56%) farmers had the chance to sell their product to the export market (Table-6, Fig- 5).

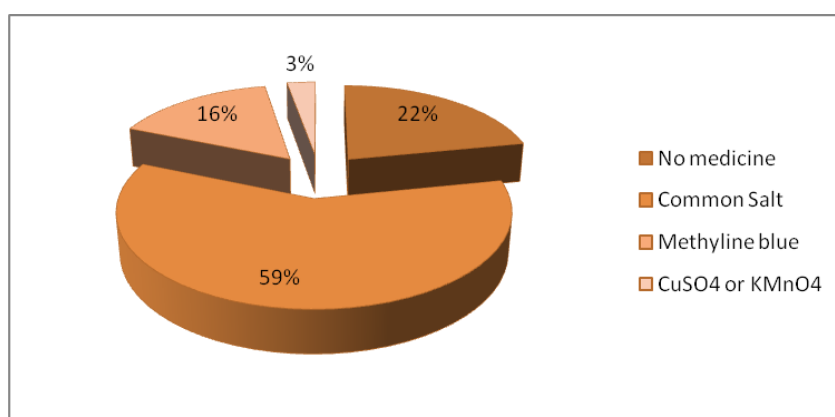


Figure 3: Chart Showing the Percentage of Medicine Used by the Respondents

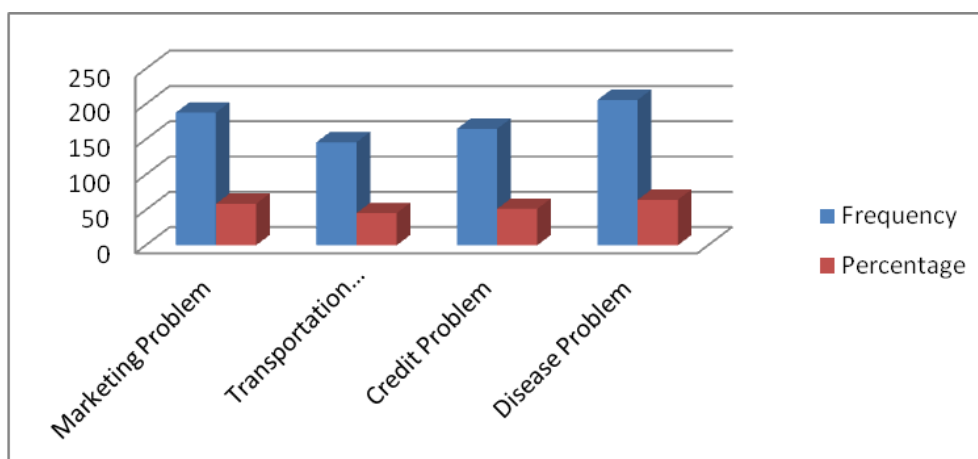


Figure 4: Chart Showing the Distribution of Problems Faced by the Respondents

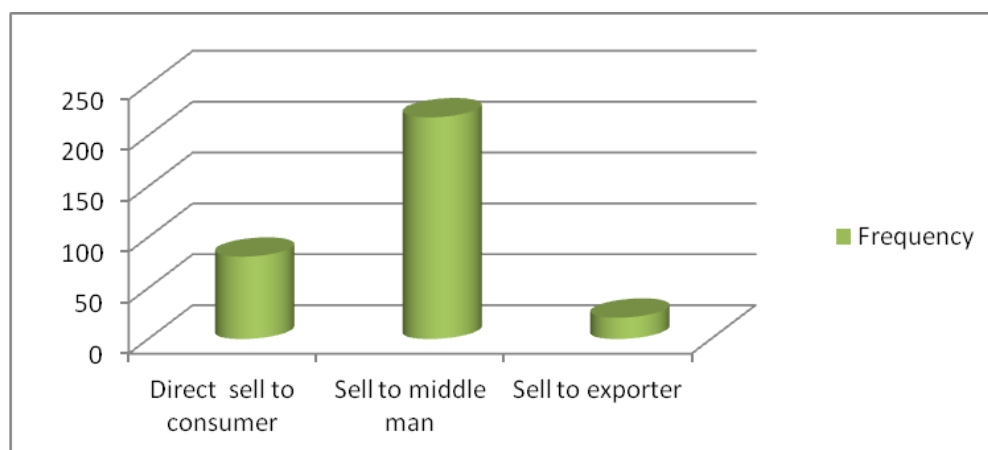


Figure 5: Chart Showing the Marketing Channels of the Aqua Business

DISCUSSIONS

The study also revealed that majority of the respondents of the ornamental fish farmers practiced semi-intensive culture during the peak season i.e. April to November of the year but they reared the fish throughout the years. The findings of the research work also revealed that the majority of the respondents earned additional annual income of Rs. 25,000-50,000/- from their small unit, which corroborated with the work of Ghosh et al., (2003).

The present study established that disease is the most serious problem in this aquaculture causing a huge loss. It is also responsible for decreased quality and dull colouration of the ornamental fishes which hardly was valued in the export market; In connection with this transportation and marketing system it was found to be the major problem in the ornamental fish farming in our state. The Study further revealed that many respondents face problem during ornamental fish farming due to lack of good transport and marketing system. Similar findings have been reported by Sen et al., (1997).

On the other hand, the present study also revealed that the credit problem was one of the most vital problems of the business due to the presence of a number of middle men in the marketing system which affected the system very badly. The study revealed that the majority of the respondents sold their valuable fishes to the middle man like whole sellers, dealers, consolidators, retailers etc. In addition to this the present study also that the demand, price and export value of the ornamental fishes depends upon its quality, size, colouration, attractiveness, brightness. Price and demand greatly emphasize on new varieties of ornamental fishes. Our findings have a similarity with the findings of Dwivedi, (2004).

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